

Cottam Solar Project

Environmental Statement:

Appendix 8.1 LVIA Methodology

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APPENDIX 8.1.1 LVIA METHODOLOGY

GUIDANCE

1.1.1 The assessment methodology follows the 'Guidelines for Landscape and Visual Impact Assessment' Third Edition (GLVIA3)¹. As recommended by GLVIA3, the process concentrates on principles and process and states (page X, Preface) that *'it does not provide a detailed or 'formulaic' recipe that can be followed in every situation – it remains the responsibility of the professional to ensure that the approach and methodology adopted are appropriate to the task in hand'*. The methodology that underpins this LVIA process has therefore been tailored to be proportionate to the assessment and nature and location of the Scheme. The methodology also considers the following guidance:

- An Approach to Landscape Character Assessment (October 2014)² ;
- Landscape Institute (17 September 2019) Technical Guidance Note 06/19 Visual Representation of Development Proposals³.
- Landscape Institute (26 May 2021) Technical Guidance Note 02/21 Assessing landscape value outside national designations⁴

INTRODUCTION

1.1.2 The significance of landscape and visual effects are determined through consideration of the *sensitivity of the receptor* and the *magnitude of change*. Sensitivity is judged through consideration of the *value* of the landscape or view, and the *susceptibility* of the receptor to change.

1.1.3 The time period for the assessment covers the construction of the Scheme and associated infrastructure, to completion of the works and the commencement of its operation and decommissioning.

¹ Landscape Institute and Institute of Environmental Management and Assessment, 2013, Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Routledge, London.

² An Approach to Landscape Character Assessment (October 2014) (Christine Tudor, Natural England) Countryside Agency and Scottish Natural Heritage (SNH), (2002) Landscape Character Assessment: Guidance for England and Scotland. [Online] Available at [landscape-character-assessment.pdf](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/100000/landscape-character-assessment.pdf) (publishing.service.gov.uk) (Last accessed 13/12/2021)

³ Landscape Institute (1 September 2019) Technical Guidance Note 06/19 Visual Representation of Development Proposals

⁴ Landscape Institute (26 May 2021) Technical Guidance Note 02/21 Assessing landscape value outside national designations

- 1.1.4 The assessment has involved a process of iterative design and re-assessment of any remaining, residual effects that could not otherwise be mitigated or 'designed out'. The type of effect is also considered and may be direct or indirect; temporary or permanent (reversible); and positive, neutral, or negative. The landscape and visual appraisal unavoidably involves a combination of both quantitative and qualitative assessment and wherever possible a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.

TERMINOLOGY

- 1.1.5 A description of the definitions, scope and context of the terminology used in the LVIA process is provided in the Glossary in Table 8.1.15 of this methodology.
- 1.1.6 GLVIA3 (paragraph 1.15) identifies with regard to impacts, effects and significance that 'Terminology can be complex and potentially confusing in this area, particularly in the use of the words 'impact' and 'effect' in LVIA within EIA and SEA'. In this case, it encourages the consistent use of the terms 'impact' and 'effect' but recognises that there may be circumstances where this is not appropriate, for example where other practitioners involved in an EIA are adopting a different convention and states that:
- 1.1.7 *"This applies to 'appraisals' of landscape and visual impacts outside the formal requirements of EIA as well as those that are part of formal assessment."*
- 1.1.8 For the purpose of this LVIA process, the methodology adopts the consistent use of terms to ensure that the same meaning and ultimate judgements are applied in a transparent way throughout the assessment process. Clarity on the use of terms in this LVIA process is set out below.

Sensitivity of Receptor

- 1.1.9 This judgement is established by considering the concept of value of the landscape receptor combined with the susceptibility of the landscape resource to change. The combination of these two criteria then inform the sensitivity of landscape and visual receptors as set out in Sections 1.1.43 to 1.1.47 and 1.1.74 to 1.1.78.
- 1.1.10 For the purpose of this LVIA process, a receptor sensitivity is classified on a four-point scale of: very low, low, medium, and high (refer to Tables 8.1.4 and 8.1.10).

Resource / Receptor Value

- 1.1.11 For the concept of value of the landscape receptor, this is related to the range of factors and indicators that are attached to different landscapes by society. This list of factors is not fixed as the criteria need to be appropriate to each designation process.

- 1.1.12 In terms of value of the Landscape Character Types or Areas, this could for example relate to any designations at both national and local levels, and where there are no designations, judgements are based on criteria set out within the Landscape Institute technical guidance note (TGN)⁵ that provides information and guidance to landscape professionals and others who need to make judgements about the value of landscapes (outside national landscape designations).
- 1.1.13 In terms of the value of local landscape designations, this could for example relate to locally valued landscapes such as Special Landscape Areas or Areas of Great Landscape Value). For these receptors, it is necessary to understand their reasons for designation and to examine how the criteria relate to the area in question in order to make judgements on their value.
- 1.1.14 In terms of visual receptors, this could for example relate to recreation and enjoyment and to the recognition attached to a particular view by visitors (through appearances in guidebooks or on tourist maps and the provision of facilities such as car parking and interpretation). These visual receptors could include road users, walkers, and horse riders, but could also include users of waterways (boats), leisure cyclists and train users, where appropriate.
- 1.1.15 In terms of landscape receptors, this could for example relate to local distinctiveness and sense of place where the landscape may be designated for its cultural associations.
- 1.1.16 For the purpose of this LVIA process, a receptor value is classified on a four-point scale of: very low, low, medium, and high (refer to Tables 8.1.1 and 8.1.8).

Susceptibility to Change

- 1.1.17 For the susceptibility to change, this has not been recorded as part of the baseline situation but has instead been considered as part of the assessment of effects and tailored to the project.
- 1.1.18 In terms of landscape receptors, susceptibility to change means the ability to accommodate a proposed development without undue consequences for the maintenance of the baseline situation and/or achievement of landscape planning policies and strategies.

⁵ Landscape Institute (26 May 2021) Technical Guidance Note 02/21 Assessing landscape value outside national designations

1.1.19 In terms of visual receptors, this is a product of the occupation or activity of people experiencing the view and the extent to which their attention or interest may therefore be focused on the views and visual amenity they experience.

1.1.20 For the purpose of this LVIA process, susceptibility to change is classified on a four-point scale of: very low, low, medium, and high (refer to Tables 8.1.3 and 8.1.9).

Magnitude of Change

1.1.21 For magnitude of change, this has been gauged by assessing the type and amount of change predicted to occur as a result of the Scheme in relation to the landscape or visual receptor. Factors influencing the magnitude of change include: size or scale; geographical extent; and duration and reversibility of effect as set out in Sections 1.1.48 to 1.1.56 and 1.1.79 to 1.1.86.

1.1.22 For the purpose of this LVIA process, the overall magnitude of change is classified on a four-point scale of: very low, low, medium, and high (refer to Tables 8.1.7 and 8.1.12)

Significance of Effects

1.1.23 For the significance of landscape and visual effects, these are gauged by considering the magnitude of change along with the sensitivity of the receptor using professional judgement.

1.1.24 For the purpose of this LVIA process, the significance of effects have been classified on a five-point scale of: negligible, minor, minor to moderate, moderate, moderate to major and major (Table 8.1.13).

1.1.25 In line with best practice guidance set out in GLVIA3 (paragraph 1.17), in addition to assessing significance, effects are classified as: beneficial, adverse or neutral, as well as direct and indirect. An effect is understood to be neutral when the predicted residual change would, on balance, result in neither an improvement, nor a deterioration of the landscape and visual resource compared with the existing situation.

BASELINE CONDITIONS

1.1.26 The landscape and visual baseline conditions of the assessment are established by undertaking a detailed desk study, fieldwork, and analysis of findings to create a detailed understanding of the existing landscape and visual context of both the site and surrounding landscape within the proposed study area.

1.1.27 Establishing the landscape baseline included gathering data on the landscape character and how this varies through the proposed study area; together with its

geographic extent; and how it is experienced and valued. The desk-based assessment began with a review of legislation, policy and guidance including published landscape and townscape character assessments of the area and its wider context. This developed an understanding of the wider baseline environment within which the study area is located.

- 1.1.28 The visual baseline established the areas from where the new components of the Scheme would be seen, who would see them, the places where those who would see them would be affected and the nature of views and visual amenity.
- 1.1.29 Together, the established baseline provides an understanding of the components of the landscape and visual resource that may be affected by the Scheme, which includes the identification of key landscape receptors and viewpoints which represent the existing situation. The baseline for this LVIA process is of sufficient detail to enable a well-informed assessment of the likely landscape & visual effects on the baseline conditions.
- 1.1.30 The desk and field-based assessment has involved the following key activities:
- Familiarisation with the landscape and visual resources of the area through site visits and fieldwork within which the Scheme would be located;
 - Identification of landscape and visual resources through site visits and fieldwork likely to be significantly affected by the Scheme;
 - Preparation of Zone of Theoretical Visibility (ZTV) maps;
 - Identification of the location of viewpoints, informed by site visits /fieldwork and the ZTV, that were used to inform the assessment of effects of both landscape and visual resources; and
 - Identification of suitable study areas for the LVIA.
- 1.1.31 Viewpoints identified through consultation and during desk studies were ground-truthed through fieldwork and their positions fixed prior to photography being undertaken. Landscape character types (LCTs) were reviewed during fieldwork and the descriptions contained in the published landscape character assessment were augmented where necessary. Landscape and visual receptors were also assessed to ensure they are accurately represented through desk-based assessment.

ASSESSMENT OF LANDSCAPE EFFECTS

- 1.1.32 In accordance with GLVIA3 (paragraphs 2.20 and 2.21), the assessment of landscape and visual effects are separate but linked procedures; the landscape is assessed as

an environmental resource in its own right, whereas visual effects are assessed on views and visual amenity experienced by people.

1.1.33 Landscape effects are concerned wholly with the effects of a development on the character of the landscape, the individual elements, the aesthetic and perceptual aspects, and the condition of the landscape and are defined by GLVIA3 (paragraph 5.34), as follows:

- *“The first step is to identify the components of the landscape that are likely to be affected by the scheme, often referred to as the landscape receptors, such as overall character and key characteristics, individual elements or features, and specific aesthetic or perceptual aspects.*
- *The second step is to identify interactions between these landscape receptors and the different components of the development at all different stages, including construction, operation and, where relevant, decommissioning and restoration/reinstatement.”*

1.1.34 For the purpose of this LVIA process, both landscape and visual effects have been assessed at construction stage, and during operation (Year 1), operation (Year 15) and decommissioning of the Scheme.

1.1.35 This LVIA process takes the following approach to mitigation and what is required in the process of assessment of both the landscape and visual effects. There are two ways in which this mitigation has been approached:

Embedded Mitigation: This is taken into account at the construction, operation (Year 1 and Year 15) and decommissioning stages of the Scheme and is also referred to as ‘primary mitigation’.

Additional Mitigation: This is applied at the operation stage (Year 1) and operation stage (Year 15) of the Scheme and is also referred to as ‘secondary mitigation’.

Residual Mitigation: This is applied at the construction, operation (Year 1) and operation (Year 15) stage and is also referred to as ‘tertiary’ mitigation. This is mitigation within the wider land ownership or forming part of the management and maintenance objectives, where applicable. At Year 15, there would be a re-evaluation of the Scheme to identify any residual landscape and visual effects where tertiary mitigation would be applied.

[Overview of Assessing Landscape Sensitivity](#)

1.1.36 As noted above, the sensitivity of landscape receptors is assessed through consideration of their value and susceptibility to change. The process for determining landscape sensitivity is set out below.

Landscape Value

1.1.37 For landscape receptors, value concerns the importance of the landscape resource as evidenced by the presence of landscape designations and professional judgement. Susceptibility is concerned with the landscape’s ability to absorb change brought about by the Scheme.

1.1.38 Table 8.1.1 below illustrates how the landscape value has been determined.

Table 8.1.1: Landscape Receptor Value

Value	Recognition	Features / Quality	Condition
High	Typically, a landscape / feature of international or national recognition e.g., World Heritage Sites, National Parks, Scheduled Monuments and Grade I and II* Listed Buildings, Registered Parks and Gardens	A strong sense of place with landscape / features worthy of conservation; Absence of detracting features.	A very high-quality landscape / feature; attractive landscape / feature; exceptional
Medium	Regional recognition e.g., Conservation Areas; Grade II Listed Buildings, Registered Parks and Gardens	A number of distinguishing features worthy of conservation; evidence of some degradation and occasional detracting features.	Ordinary to good quality landscape / feature with some potential for substitution; a reasonably attractive landscape / feature.
Low	Undesignated, but locally valued landscape / features	Few landscape features worthy of conservation; evidence of degradation with some detracting features.	Ordinary landscape / feature with high potential for substitution; quality that is fairly commonplace.
Very Low	Typically, an undesignated landscape / feature.	No landscape features worthy of conservation; evidence of degradation with many detracting features.	Low quality landscape / feature with very high potential for substitution; limited variety or distinctiveness; commonplace

- 1.1.39 The European Landscape Convention⁶ promotes the need to take account of all landscapes, with less emphasis on the special and more recognition that ordinary landscapes, such as community landscapes also have their own value. GLVIA3 paragraph also recognises that relative value is attached to different landscapes, and at paragraph 5.19 states that “*value can apply to areas of landscape as a whole, or to individual elements, features and aesthetic or perceptual dimensions which contribute to the character of the landscape.*” And that “*the value attached to undesignated landscapes also needs to be carefully considered and individual elements of the landscape – such as trees, buildings or hedgerows – may also have value.*”
- 1.1.40 To assess the value attached to undesignated landscapes, criteria are set out within the Landscape Institute Technical Guidance Note 02/21⁷ (TGN 02/21) (Table A2.15 2020).
- 1.1.41 Table 8.1.2 below illustrates the selection of criterion used within TGN 02/21.

Table 8.1.2: Criterion for Assessing the Value of Undesignated Landscapes

Landscape Criterion	Definition	Description
Scenic	Landscape that appeals primarily to the visual senses, and is appreciated for its beauty.	Landscapes with strong visual, sensory, and perceptual impacts and experiential appeal. May contain a pleasing combination of features, visual contrasts, or dramatic elements.
Cultural	Landscape with clear evidence of archaeological, historical, or cultural interests/ associations/ significance, offering a time-depth to people’s experience.	Landscape rich in archaeology or built heritage, or consciously designed (e.g., parks and gardens), or largely the product of human interaction. May include the scene of historic events (such as battles), have literary or artistic connections, or other cultural associations and local history.

⁶ The European Landscape Convention for the UK. Available online at <https://www.gov.uk/government/publications/european-landscape-convention-guidelines-for-managing-landscapes>

⁷ Landscape Institute, *Technical Guidance Note (TGN) 02/21 Assessing landscape value outside national designations*, May 2021

Natural	Landscape of strong natural or semi-natural character, with clear evidence of ecological, geological, or geomorphological interest.	Landscapes with extensive semi-natural habitat, distinctive topography or geology, a general lack of permanent human presence and a perception of wildness.
Recreation and enjoyment	Landscape recognised as offering opportunities for recreation and amenity, where experience of landscape is important.	Landscapes valued for recreation. May contain viewpoints, landmarks, and renowned vistas; paths and trails including core paths, rights of way, long distance trails, national routes; and scenic routes.
Local distinctiveness and sense of place	Landscape that has a strong sense of identity.	Landscape features or combination of features which are identified as being characteristic of a particular place. Landscapes that are distinctive with a strong 'sense of place'.
Health and wellbeing	A landscape which makes particular contribution to both physical and psychological health and wellbeing of a local community and/or visitors.	Landscape facilities and features which are well-used and valued by local communities and visitors.
Important spatial function	Landscape that performs a clearly identifiable and valued spatial role.	Can include, for example, settlement 'gateways', or separation between developments.

Susceptibility of the Landscape Receptors to Change

- 1.1.42 This means the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the Scheme without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.⁸

⁸ Landscape Institute Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Paragraph 5.40, Page 88.

1.1.43 Table 8.1.3 below illustrates how susceptibility of landscape receptors to change has been determined.

Table 8.1.3: Landscape Receptor Susceptibility to Change

Susceptibility	Criterion
High	The landscape receptor is highly susceptible to the Scheme, and a low ability to accommodate the specific proposed change, because the key characteristics of the landscape have no or very limited ability to accommodate the specific proposed change without undue adverse effects taking account of the existing character and quality of the landscape, and/or achievement of relevant planning policies and strategies.
Medium	The landscape receptor is moderately susceptible to the Scheme, and a moderate ability to accommodate the specific proposed change, because the relevant characteristics of the landscape have some ability to accommodate it without undue adverse effects, taking account of the existing character and quality of the landscape, and/or achievement of relevant planning policies and strategies.
Low	The landscape receptor has low susceptibility to the Scheme, and a high ability to accommodate the specific proposed change, because the relevant characteristics of the landscape are generally able to accommodate it with little, or no, undue consequences for the maintenance of the baseline situation, taking account of the existing character and quality of the landscape.
Very Low	Very high ability to accommodate the specific proposed change; no undue consequences for the maintenance of the baseline situation (receptor value) and/or achievement of relevant planning policies and strategies.

Landscape Sensitivity

1.1.44 GLVIA3 (paragraph 5.39) indicates that combining susceptibility and value can be achieved in a number of ways and needs to include professional judgement. However, it is generally accepted that a combination of high susceptibility and high value is likely to result in the highest sensitivity, whereas a low susceptibility and low value is likely to result in the lowest level of sensitivity. It should be noted that the levels are indicative and in practice there is not a clear distinction between criteria levels.

1.1.45 Table 8.1.4 below provides a summary of the likely characteristics of the differing levels of sensitivity.

Table 8.1.4: Landscape Sensitivity Criterion

Landscape Resource Sensitivity	Characteristics
High	<p>Landscape character, characteristics, and elements where, through consideration of the landscape resource and characteristics, there would generally be a lower landscape tolerance or scope for landscape change or positive enhancement, and higher landscape value and quality. Often includes landscapes which are highly valued for their scenic quality, including most statutorily (nationally / internationally designated landscapes).</p> <p>Elements/features that could for example be described as unique or are nationally scarce.</p> <p>Mature vegetation with provenance such as ancient woodland or mature parkland trees, and/or mature landscape features which are characteristic of and contribute to a sense of place and illustrates time- depth in a landscape and if replaceable, could for example not be replaced other than in the long term.</p>
Medium	<p>Landscape character, characteristics, and elements where, through consideration of the landscape resource and characteristics, there would be a medium landscape tolerance or some scope for landscape change. Often includes landscapes of medium landscape value and quality which may be locally designated.</p> <p>Areas that have a positive landscape character but include some areas of alteration/degradation/or erosion of features.</p> <p>Perceptual/aesthetic aspects has some vulnerability to unsympathetic development; and/or features/elements that are locally commonplace; unusual locally but in moderate/poor condition; or mature vegetation that is in moderate/poor condition or readily replicated.</p>
Low	<p>Landscape character, characteristics, and elements where, through consideration of the landscape resource and characteristics, there would be higher landscape tolerance or scope for landscape change or positive enhancement.</p> <p>Damaged or substantially modified landscapes with few characteristic features of value.</p> <p>Capable of absorbing major change, and landscape elements/features that might be considered to detract from landscape character such as obtrusive man-made features.</p>
Very Low	<p>Landscape character, characteristics, and elements where there is a high landscape tolerance or a planned desire for landscape change. Usually</p>

Landscape Resource Sensitivity	Characteristics
	<p>applies to landscapes with a lower landscape susceptibility or higher landscape tolerance for the Scheme. May also apply to derelict landscapes, spoil heaps, and de-graded urban fringe areas that require restoration or re- development / re-planting.</p> <p>Areas that are relatively bland or neutral in character with few/no notable features.</p> <p>A landscape that includes areas of alteration/degradation or erosion of features, and/or landscape elements/features that are commonplace or make little contribution to local distinctiveness.</p> <p>Opportunities for the restoration of landscape through mitigation measures associated with the proposal.</p>

1.1.46 The judgement on landscape sensitivity as explained above is based on consideration of both the landscape receptor's value and its susceptibility to change arising from the type of development proposed.

1.1.47 Table 8.1.5 below illustrates how landscape value and susceptibility are combined to determine the level of landscape sensitivity.

Table 8.1.5: Matrix for Determining Landscape Sensitivity

Susceptibility	High	Medium	Low	Very Low
Value				
High	High	Medium-High	Low-Medium	Negligible
Medium	Medium-High	Medium	Low	Negligible
Low	Low-Medium	Low	Negligible-Low	Negligible
Very Low	Negligible	Negligible	Negligible	Negligible

1.1.48 All the identified landscape receptors are first established in the assessment of potential landscape effects to establish landscape sensitivity. It is only those landscape receptors that are identified as having a Medium, Medium/High or High Sensitivity to the Scheme that are carried forward to the assessment stage.

Magnitude of Landscape Change

1.1.49 The determination of the magnitude of landscape change combines an assessment of the size or scale of change likely to be experienced as a result of each effect⁹, the geographical extent of the area likely to be influenced and the duration and reversibility of effects.

Size or Scale

1.1.50 Judgements are needed about the size or scale of change in the landscape that is likely to be experienced as a result of each effect. GLVIA3 (paragraph 5.49), states that *“The judgements should, for example, take account of:*

- *The extent of the existing landscape elements that would be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape – in some cases this may be quantified;*
- *The degree to which aesthetic and perceptual aspects of the landscape are altered either for example, removal of existing components of the landscape or by addition of new ones – for example, removal of hedges may change a small scale, intimate landscape into a large-scale, open one, or introduction of new buildings or tall structures may alter open skylines;*
- *Whether the effects change the key characteristics of the landscape, which are critical to its distinctive character.”*

Geographical Extent

1.1.51 The geographical area over which the landscape change would be experienced is also considered. This is dependent upon the nature of the proposal and the scale of effects upon the receiving landscape/landscapes; however, GLVIA3 (paragraph 5.49), notes that, in general effects may have an influence at varying scales and states that *“this will vary according to the nature of the project and may not always be relevant on every occasion:*

- *at the site level, within the proposed development site itself;*
- *at the level of the immediate setting of the site;*
- *at the scale of the landscape type or character area within which the proposal lies;*
- *on a larger scale, influencing several landscape types or character areas.”*

⁹ Guidelines for Landscape and Visual Impact Assessment (page 90)

Duration and Reversibility of the Landscape Effects

- 1.1.52 GLVIA3 (paragraph 5.51), notes that duration and reversibility are separate but linked considerations. Duration can usually be simply judged on a scale such as:
- Short-term: 0-5 years;
 - Medium-term: 5-10 years; and
 - Long-term: 10-40 years.
- 1.1.53 For the purpose of this LVIA process, this Scheme has been assessed as a long-term duration.
- 1.1.54 Reversibility is a judgement about whether or not a development can be removed, and once removed whether the landscape can be reinstated and/or fully restored. GLVIA3 notes at paragraph 5.52 that *“Mineral workings may be partially reversible in that the landscape can be restored to something similar to, but not the same as, the original...Duration and reversibility can sometimes usefully be considered together, so that a temporary or partially reversible effect is linked to definition of how long that effect will last”*.
- 1.1.55 Table 8.1.6 below indicates the type of land use and the respective assessment of reversibility defined by GLVIA3 (paragraph 6.41).

Table 8.1.6 Magnitude of Landscape Change: Duration and Reversibility

Category	Description
Permanent	Permanent, is irreversible change to the landscape, such as housing development, as it not possible to remove the development and restore the land to the original state.
Partially Reversible	Partially Reversible, change to the landscape, where the landscape can be restored to something similar to the landscape that was removed. For example, mineral developments, as it is possible to restore the land to something similar to the original state, but not the same state.
Reversible	Reversible, change to the landscape where the landscape can be fully restored. For example, a marine fish farm development, as it is possible to wholly remove the remove the development and to restore the landscape to the original state. This also includes construction activities which are of temporary nature.

Overall Magnitude of Landscape Change

- 1.1.56 The overall magnitude of landscape change combines size and scale, geographical extent and duration and reversibility. Not all aspects of a criterion need to be met for an evaluation to be given.
- 1.1.57 Table 8.1.7 below sets out the criterion used to assess the overall magnitude of landscape change.

Table 8.1.7 Overall Magnitude of Landscape Change

Magnitude Evaluation	Size, scale and nature	Geographical Extent	Duration & Reversibility
High	<p>A large extent of existing landscape elements would be lost / adjusted, the proportion that this represents within the landscape is considerable and the resultant change to the landscape character resulting from such a loss is large.</p> <p>Large scale alteration of the aesthetic and perceptual aspects of the landscape such as the removal of existing components of the landscape or by addition of new ones – for example, removal of hedges may change a small scale, intimate landscape into a large-scale, open one, or introduction of new buildings or tall structures may alter open skylines. The effects change the key characteristics of the landscape features and landscape character, which are critical to its distinctive overall character.</p>	<p>The change would affect all of the landscape receptors being assessed, as the Scheme would occupy a large geographical extent, e.g., the change would be on a large scale, influencing several landscape types or character areas.</p>	<p>Long term; permanent / non-reversible or partially reversible.</p>
Medium	<p>A medium extent of existing landscape elements would be lost / adjusted, the proportion that this</p>	<p>The change would affect a medium extent of the landscape receptors</p>	<p>Medium term; semi-permanent or partially reversible.</p>

Magnitude Evaluation	Size, scale and nature	Geographical Extent	Duration & Reversibility
	<p>represents within the landscape is medium and the resultant change to the landscape character resulting from such a loss is medium.</p> <p>Medium scale alteration of the aesthetic and perceptual aspects of the landscape such as the removal of existing components of the landscape or by addition of new ones.</p> <p>The effects change some of the key characteristics of the landscape features and landscape character, which are critical to its distinctive overall character.</p>	<p>being assessed, as the Scheme would occupy a moderate geographical extent, e.g., at the scale of the landscape type or character area within which the proposal lies.</p>	
Low	<p>A small extent of existing landscape elements would be lost / adjusted, the proportion that this represents within the landscape is low and the resultant change to the landscape character resulting from such a loss is low.</p> <p>Small scale alteration of the aesthetic and perceptual aspects of the landscape such as the removal of existing components of the landscape or by addition of new ones.</p> <p>The effects change a small number of the key characteristics of the landscape features and</p>	<p>The change would affect a small part of the landscape receptors being assessed, as the Scheme would occupy a small geographical extent, e.g., at the level of the immediate setting of the site.</p>	<p>Short term / temporary; partially reversible or reversible.</p>

Magnitude Evaluation	Size, scale and nature	Geographical Extent	Duration & Reversibility
	landscape character, which are critical to its distinctive overall character.		
Very Low	<p>A barely perceptible extent of landscape features and elements of importance to the character of the baseline are lost / adjusted. There is a barely discernible change to aesthetic and / or perceptual attributes of landscape features and landscape character and such changes occur across a very limited geographical area and / or proportion of the landscape receptor.</p> <p>The effects change a barely discernible number of the key characteristics of the landscape, which are critical to its distinctive character.</p>	The change would affect only a negligible part of the landscape receptors being assessed, as the Scheme would occupy a limited geographical extent, e.g., the site level, within the Scheme site itself.	Short term / temporary; partially reversible or reversible.

ASSESSMENT OF VISUAL EFFECTS

- 1.1.58 Visual effects are concerned wholly with the effect of a development on views, and the general visual amenity and are defined by the Landscape Institute in GLVIA 3 (paragraph 6.1), as follows:
- 1.1.59 *“An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views.”*
- 1.1.60 Visual effects are identified for different receptors (people) who will experience the view at their places of residence, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:

- Visual effect: a change to an existing static view, sequential views, or wider visual amenity as a result of a development or the loss of particular landscape elements or features already present in the view.

1.1.61 The visual assessment for this LVIA process aims to determine from which points the Scheme can be seen in the surrounding landscape; this is known as the visual envelope. Once determined, a series of representative, specific and illustrative viewpoints were chosen (i.e., areas within the visual envelope from where it may be possible to see the Scheme from publicly accessible viewpoints), such as residential areas, public open spaces, PRoW / public footpaths and roads.

1.1.62 Visual effects relate to changes in available views of the landscape and the effect of those changes on people, including:

- The direct effects of the Scheme on the content and character of views through the intrusion or obstruction and/or the change or loss of existing elements.
- The overall effect on visual amenity, be it degradation or enhancement.

1.1.63 In predicting the effects of the Scheme on the visual receptors from the viewpoints being assessed, GLVIA3 (para 6.27), states that it is helpful to consider (but not restricted to) the following issues:

- Nature of the view (full, partial or glimpsed);
- Proportion of the Scheme visible (full, most, part or none);
- Distance of the viewpoint from the Scheme and whether it would be the focus of the view or only a small element;
- Whether the view is stationary, transient, or sequential; and
- The nature of the changes to the view.

1.1.64 Additionally, the seasonal effects of vegetation are to be considered, in particular the varying degree of screening and filtering of views.

1.1.65 People have different responses to views which are dependent upon context such as the:

- Location;
- Time of day;
- Season; and

- Degree of exposure to views.

1.1.66 Responses to views are also dependent upon the purpose of people being in a particular place such as:

- Recreation;
- Residence;
- Employment; and
- Passing through on roads, rail, or other forms of transport.

1.1.67 As people move through the landscape, certain activities or locations may be specifically associated with the experience and enjoyment of the landscape, such as:

- The use of paths such as core paths, footpaths, bridleways, byways open to all traffic (BOATs) and National Trails;
- National or local cycle routes; and
- Tourist or scenic routes, and associated viewpoints on land or water.

[Overview to Assessing Visual Sensitivity](#)

1.1.68 To determine visual effects both the sensitivity of the visual receptor and the magnitude of change must be considered. Determining visual sensitivity is the combination of susceptibility to change and value of a view. It is considered that a combination of high susceptibility to change and high value is likely to result in the highest sensitivity, whereas a low susceptibility and value is likely to result in the lowest level. The value, susceptibility to change and resultant sensitivity of a visual receptor are broadly categorised based on the following Tables 8.1.8 and 8.1.9 below. It should be noted that the levels are indicative and in practice there is not a clear distinction between criteria levels.

1.1.69 The susceptibility of visual receptors to changes in the view and visual amenity is related to activity they are engaged in and the extent to which their attention is focussed on the views and visual amenity at that location. As such, those receptors most sensitive to change are likely to include people engaged in outdoor activities where an appreciation of the landscape is the focus or residents in areas where the landscape setting contributes to the setting of the properties.

1.1.70 Conversely, those considered least sensitive to change include (but are not restricted to) people engaged in outdoor sports or recreation where there is no

focus on the surrounding landscape/views and people at their place of work where the focus is on the work activity.

Value of Views

- 1.1.71 The value attached to views has been judged based on the following:
- Recognition of the value attached to particular views, for example in relation to heritage assets, or through planning designations; and
 - Indicators of the value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment and references to them in literature or art.
- 1.1.72 Table 8.1.8 below summarises the criterion used to assess the value attached to views.

Table 8.1.8 Value Attached to Views

Value	Criterion
High	Views from and within landscapes / viewpoints of national importance (National Parks, AONBs), highly popular visitor attractions where the view forms an important part of the experience, or heritage assets, or through planning designations such as conservation areas, listed buildings, Registered Parks & Gardens, or with important cultural associations, or where the view is deemed by the assessor to be of a high value.
Medium	Views from landscapes / viewpoints of regional/district importance, or visitor attractions at regional or local levels where the view forms part of the experience, or local planning designations, or with local cultural associations, or where the view is deemed by the assessor to be of a medium value.
Low	Views from landscapes / viewpoints with no designations, and not particularly popular as a viewpoint, and unlikely to be visited specifically to experience the view available, with minimal or no cultural associations, or where the view is deemed by the assessor to be of a low value.
Very Low	Views from landscapes / viewpoints with no designations, and not popular as a viewpoint, and where view provides no positive contribution to the appreciation of the landscape

	with no cultural associations, or where the view is deemed by the assessor to be of very low value.
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Susceptibility of the Visual Receptors to Change

- 1.1.73 The susceptibility of visual receptors to changes in views depends upon:
- The occupation or activity of people experiencing the view at particular locations; and
 - The extent to which their attention or interest may therefore be focussed on the views and the visual amenity they experience at particular locations¹⁰.
- 1.1.74 Table 8.1.9 below summarises the criterion used to assess the susceptibility of a visual receptor to change.

8.1.9 Visual Receptor Susceptibility to Change

Susceptibility	Type of Receptor
High	<p>Residents at home.</p> <p>Views from well used public rights of way including strategic footpaths / long distance trails and cycle routes (where the attractive nature of the countryside is a significant factor in the enjoyment of the walk).</p> <p>Visitors along scenic routes and to recognised viewpoints.</p> <p>Visitors to protected landscapes or heritage assets where views of the surroundings are an important contributor to the experience.</p> <p>The location, numbers, frequency of use and visual context of the viewpoint would be high.</p> <p>Communities where views contribute to the landscape setting enjoyed by residents in the area.</p> <p>Travellers on road, rail, or other transport routes along scenic routes, where the appreciation of the view contributes to the enjoyment and quality of the journey.</p>
Medium	Views experienced from boats, public rights of way / footpaths used locally and passing through the landscape and well used footpaths within settlements.

¹⁰ Ibid. 1. Paragraph 6.32

	<p>Views from places of worship and associated grounds, schools, country parks and golf clubs.</p> <p>Views experienced by users of local roads where there are clear / open views across the landscape and low levels of traffic.</p> <p>The location, numbers, frequency of use and visual context of the viewpoint would be medium.</p>
Low	<p>Views experienced from places of work where workers and visitors are concentrating on their day-to-day activities.</p> <p>Views experienced by or near to motorways or major roads.</p> <p>Views experienced by users of the rail network and main roads travelling at speed or local roads where the focus is upon the road ahead owing to traffic conditions and the context / composition of the view.</p> <p>Views experienced from less well used public rights of way which pass through less attractive landscapes or townscapes and are not used for enjoyment of the scenery.</p> <p>Views experienced by those playing or spectating at outdoor sports or utilising outdoor sports facilities.</p> <p>The location, numbers, frequency of use and visual context of the viewpoint would be low.</p>
Very Low	<p>Views experienced from places of work where workers and visitors are concentrating on their day-to-day activities.</p> <p>Views experienced by or near to motorways or major roads.</p> <p>Views experienced by users of the rail network and main roads travelling at high speed or local roads where the focus is upon the road ahead owing to traffic conditions and the context / composition of the view.</p> <p>Views experienced from very infrequently used public rights of way which pass through unattractive or discordant landscapes or townscapes and are not used for enjoyment of the scenery.</p> <p>Views experienced by those of which the view is unlikely to be part of the receptor's experience.</p> <p>The location, numbers, frequency of use and visual context of the viewpoint would be very low.</p>

Sensitivity of Visual Receptors

- 1.1.75 The sensitivity of visual receptors is defined in terms of the relationship between the value of views and the susceptibility of the different viewers to the proposed change. Professional judgements have been made on the merit of the view based on the visual receptor. It should be noted that the levels are indicative and in practice there is not a clear distinction between criteria levels.
- 1.1.76 Table 8.1.10 below summarises the likely characteristics of the differing levels of sensitivity.

Table 8.1.10 Visual Sensitivity Criterion

Visual Resource Sensitivity	Characteristics
High	<p>A well-balanced view containing attractive features and notable for its scenic quality with no or very few/minimal visual detractors.</p> <p>A view which is an important reason for receptors being there.</p> <p>A view which is experienced by a large number of people and/ or recognised for its qualities.</p> <p>A view with a medium – high susceptibility to change and experienced by visual receptors of a high value.</p>
Medium	<p>An otherwise attractive view that includes some attractive or discordant features/visual detractors.</p> <p>A view which plays a part in the reason why a receptor would be there.</p> <p>A view which is locally recognised.</p> <p>A view with a low - medium susceptibility to change and experienced by visual receptors of a low - medium value.</p>
Low	<p>A view that is simplistic and contains few attractive or notable features or a number of visual detractors which may dominate the view.</p> <p>A view which plays a small part in the reason why a receptor would be there.</p> <p>A view with a low susceptibility to change, and a low value.</p>
Very Low	<p>A view that is unattractive, discordant and/or contains many visual detractors.</p> <p>A view which is unlikely to be part of the receptor’s experience.</p> <p>A view with a very low susceptibility to change, and very low sensitivity.</p>

- 1.1.77 The judgement on visual sensitivity as explained above is based on consideration of both the visual receptor’s value and its susceptibility to change arising from the type of development proposed.
- 1.1.78 Table 8.1.11 below illustrates how visual value and susceptibility are combined to determine the level of visual sensitivity.

Table 8.1.11: Matrix for Determining Visual Sensitivity

Susceptibility	High	Medium	Low	Very Low
Value				
High	High	Medium-High	Low-Medium	Negligible
Medium	Medium-High	Medium	Low	Negligible
Low	Low-Medium	Low	Negligible-Low	Negligible
Very Low	Negligible	Negligible	Negligible	Negligible

1.1.79 All the identified visual receptors are first established in the assessment of potential visual effects to establish visual sensitivity. It is only those visual receptors that are identified as having a Medium, Medium/High or High Sensitivity to the development that are carried forward to the assessment stage.

Magnitude of Visual Change

1.1.80 The magnitude of change to visual receptors is assessed in terms of the following:

Size or Scale

- The scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the Scheme;
- The degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour, and texture; and
- The nature of the view of the Scheme, in terms of the relative amount of time over which it would be experienced and whether views would be full, partial or glimpses.

1.1.81 Not all aspects of a criterion need to be met for an evaluation to be given.

Geographical Extent

1.1.82 The geographical extent of the visual change identified at viewpoints is assessed by reference to a combination of the ZTV and field work. The following factors are considered:

1.1.83 The geographical extent of a visual effect reflects:

- The angle of view in relation to the main activity of the receptor;
- The distance of the viewpoint from the Scheme; and

- The extent of the area over which the changes would be visible.

Duration and Reversibility of Visual Effects

1.1.84 The following terminology, which considers whether views would be permanent and irreversible or temporary and reversible, is used to describe the duration of the visual change at representative, specific and illustrative viewpoints:

- Short-term: 0-5 years;
- Medium-term: 5-10 years; and
- Long-term: 10 to 40 years.

1.1.85 For the purposes of this assessment LVIA process, the Scheme has been assessed as a long-term duration.

1.1.86 Reversibility is a judgement about whether or not a development can be removed, and once removed whether the view can be fully restored.

Overall Magnitude of Visual Change

1.1.87 Table 8.1.12 below sets out the criterion used to assess the overall magnitude of visual change.

Table 8.1.12 Overall Magnitude of Visual Change.

Magnitude Evaluation	Size, Scale and Nature	Geographical Extent	Duration & Reversibility
High	Occupies an extensive proportion of the view and may even obstruct a significant portion of the view. Views may become the dominant feature. Considerable change to the majority / many existing landscape elements and/or landscape character; fundamental changes the surroundings and baseline to a large extent; very noticeable.	Ranging from notable change over extensive area to intensive change over a more limited area.	Long term; permanent/ non- reversible or partially reversible.

Magnitude Evaluation	Size, Scale and Nature	Geographical Extent	Duration & Reversibility
Medium	<p>Occupies much of the view but would not fundamentally change its characteristics. Changes would be immediately visible but not a key feature of the view.</p> <p>Some change to existing landscape elements and /or landscape character; discernible changes the surroundings of a receptor, such that its baseline is partly altered; readily noticeable.</p>	Moderate changes in a localised area.	Medium term; semi-permanent or partially reversible.
Low	<p>Occupies a small portion of the view and therefore would not result in a change to the view's composition. Small change to existing landscape elements and/or landscape character; slight, but detectable impacts that do not alter the baseline of the receptor materially not readily noticeable.</p>	Minor changes in a localised area.	Short term / temporary; partially reversible or reversible.
Very Low	<p>Occupies a small portion of the view and therefore would not result in a change to the view's composition. Small change to existing landscape elements and/or landscape character; slight, but detectable impacts that do not alter the baseline of the receptor materially not readily noticeable.</p>	Minor changes in a localised area.	Short term / temporary; partially reversible or reversible.

NATURE OF EFFECTS

1.1.88 The nature of an effect is also assessed. This is dependent on a number of criteria which vary between effects upon the landscape/landscape and effects on visual amenity. Effects are classified as beneficial, neutral, or adverse according to the following definitions:

- **Beneficial** effects contribute to the landscape and visual resource through the enhancement of desirable characteristics or the introduction of new, positive attributes. The removal of undesirable existing elements or characteristics can also be beneficial, as can their replacement with more appropriate components;
- **Neutral** effects occur where a development neither contributes to nor detracts from the landscape and visual resource or where the effects are so limited that the change is hardly noticeable. A change to the landscape and visual resource is not considered to be adverse simply because it constitutes an alteration to the existing situation; and
- **Adverse** effects are those that detract from or weaken the landscape and visual resource through the introduction of elements that contrast in a detrimental way with the existing characteristics of the landscape and visual resource, or through the removal of elements that are key in its positive characterisation.

1.1.89 For the purpose of this LVIA, the process describes the overall effects on receptors and explains the justification for each assessment. For each assessed effect, a conclusion has been drawn on whether the effect is beneficial, neutral, or adverse.

SIGNIFICANCE OF EFFECT AND CRITERIA

1.1.90 The significance of landscape and visual effect and whether it is significant or not has been assessed based on a combination of the sensitivity of the receptor, and the magnitude of change, alongside the professional judgement of a chartered landscape architect.

1.1.91 The combined sensitivity of the receptor and the magnitude of change has then been used to determine the significance of effect. The nature of Landscape and Visual effects can be either beneficial, neutral, or adverse in nature.

Matrix of Combined Factors

1.1.92 Table 8.1.13 below shows how the combined factors of sensitivity and magnitude are considered together to determine the significance of effect.

Table 8.1.13: -Matrix for Determining Significance of Effect

Sensitivity	High	Medium	Low	Very Low
Magnitude				
High	Major	Moderate-Major	Minor-Moderate	Negligible
Medium	Moderate-Major	Moderate	Minor	Negligible
Low	Minor-Moderate	Minor	Negligible-Minor	Negligible
Very Low	Negligible	Negligible	Negligible	Negligible

1.1.93 In accordance with Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, it is important to determine whether the predicted landscape and visual effects arising from the Scheme are likely to be significant. Landscape and visual effects which result in a Major, Moderate – Major, and Moderate landscape or visual effect are considered to be significant.

Categories of Effect

1.1.94 Table 8.1.14 below summarises the categories of landscape and visual effects.

Table 8.1.14: Categories of Landscape and Visual Effects

Significance of Effect	Description of Landscape Effects	Description of Visual Effects
Major	Considerable change over an extensive area of a highly sensitive landscape, fundamentally affecting the key characteristics and the overall impression of its character.	The Scheme would become a prominent feature and would result in a very noticeable change to an existing highly sensitive and well composed view.
Moderate	Small or noticeable change to a highly sensitive landscape or more intensive change to a landscape of medium or low sensitivity, affecting some key characteristics and the overall impression of its character.	The Scheme would introduce some enhancing or detracting features to an existing highly sensitive and well composed view or would be prominent within a less well composed and less sensitive view, resulting in a noticeable improvement or deterioration of the existing view.
Minor	Small change to a limited area of landscape of high or medium sensitivity or a more widespread area of a less sensitive landscape, affecting few characteristics without	Where the Scheme would form a perceptible but not enhancing or detracting feature within a view of high or medium sensitivity or would be a more prominent feature

	altering the overall impression of its character.	within a poorly composed view of low sensitivity, resulting in a small improvement or deterioration of the existing view.
Negligible	No discernible improvement or deterioration to the existing landscape character.	No discernible improvement or deterioration in the existing view.
No Effect	The Scheme would not affect the landscape receptor.	The Scheme would not affect the view.

GLOSSARY

Table 8.1.15: Glossary Terms¹¹

Term	Definition
Access land	Land where the public have access either by legal right or by informal agreement.
Baseline studies	Work done to determine and describe the environmental conditions against which any future changes can be measured or predicted and assessed.
Characterisation	The process of identifying areas of similar landscape character, classifying, and mapping them and describing their character.
Characteristics	Elements, or combinations of elements, which make a contribution to distinctive landscape character.
Compensation	Measures devised to offset or compensate for residual adverse effects which cannot be prevented/avoided or further reduced.
Competent authority	The authority which determines the application for consent, permission, licence, or other authorisation to proceed with a proposal. It is the authority that must consider the environmental information before granting any kind of authorisation.
Consultation bodies	Any body specified in the *Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) which the competent authority must consult in respect of an EIA, and which also has a duty to provide a scoping opinion and information.
Designated landscape	Areas of landscape identified as being of importance at international, national, or local levels, either defined by statute or identified in development plans or other documents.
Development	Any proposal that results in a change to the landscape and/or visual environment.
Direct effect	An effect that is directly attributable to the proposed development

¹¹ Landscape Institute and Institute of Environmental Management and Assessment, 2013, Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Routledge, London. Glossary Page 155 to 159

'Do Nothing' situation	Continued change or evolution in the landscape in the absence of the proposed development.
Ecosystem services	The benefits provided by ecosystems that contribute to making human life both possible and worth living. The Millennium Ecosystem Assessment grouped ecosystem services into four broad categories: <ul style="list-style-type: none"> - Supporting services, such as nutrient cycling, oxygen production and soil formation. These underpin the provision of the other 'service' categories. - Provisioning services, such as food, fibre, fuel and water. - Regulating services, such as climate regulation, water purification and flood protection. - Cultural services, such as education, recreation, and aesthetic value.
Environmental Impact Assessment (EIA) Regulations	The EIA Regulations form part of the development management system in England. The EIA Regulations cover certain types of development which have the potential to give rise to significant effects on the environment. The EIA Regulations enable planning authorities to take account of the environmental implications of development in their decisions on planning applications.
Elements	Individual parts which make up the landscape, such as, for example, trees, hedges, and buildings.
Enhancement	Proposals that seek to improve the landscape resource and the visual amenity of the proposed development site and its wider setting, over and above its baseline condition.
Environmental Impact Assessment (EIA)	The process of gathering environmental information; describing a development; identifying and describing the likely significant environmental effects of the project; defining ways of preventing/avoiding, reducing, or offsetting or compensating for any adverse effects; consulting the general public and specific bodies with responsibilities for the environment; and presenting the results to the competent authority to inform the decision on whether the project should proceed.
Environmental statement	A statement that includes the information that is reasonably required to assess the environmental effects of the development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile, but that includes at least the information referred to in the EIA Regulations.
Feature	Particularly prominent or eye-catching elements in the landscape, like tree clumps, church towers, or wooded skylines or a particular aspect of the project proposal.
Geographical Information System (GIS)	A system that captures, stores, analyses, manages, and presents data linked to location. It links spatial information to a digital database.

Green Infrastructure (GI)	Networks of green spaces and watercourses and water bodies that connect rural areas, villages, towns, and cities.
Heritage	The historic environment and especially valued assets and qualities such as historic buildings and cultural traditions.
Historic Landscape Characterisation (HLC) and Historic Land-use Assessment (HLA)	Historic characterisation is the identification and interpretation of the historic dimension of the present-day landscape or townscape within a given area. HLC is the term used in England and Wales, HLA is the term used in Scotland.
Indirect effects	Effects that result indirectly from the proposed project, as a consequence of the direct effects, often occurring away from the site, or as a result of a sequence of interrelationships or as a result of a complex pathway. They may be separated in distance or in time from the source of the effects.
Iterative design process	The process by which project design is amended and improved by successive stages of refinement which respond to growing understanding of environmental issues.
Key characteristics	Those combinations of elements which are particularly important to the current character of the landscape and help to give an area its particularly distinctive sense of place.
Land use	What land is used for, based on broad categories of functional land cover such as urban and industrial use and the different types of agriculture and forestry.
Land cover	The surface cover of the land, usually expressed in terms of vegetation cover or lack of it. Related to but not the same as land use.
Landform	The shape and form of the land surface which has resulted from combinations of geology, geomorphology, slope, elevation and physical processes.
Landscape	An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.
Landscape and Visual Impact Assessment (LVIA)	Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the likely significance of the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity.
Landscape character	A distinct, recognisable, and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape Character Assessment (LCA)	Landscape character assessment is the process of identifying and describing variation in the character of the landscape and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make landscapes distinctive. The process results in the production of a Landscape Character Assessment.

Landscape Character Types (LCTs)	These are single unique areas which are the discrete geographical areas of a particular landscape type.
Landscape classification	A process of sorting the landscape into different types using selected criteria but without attaching relative values to different sorts of landscape.
Landscape effects	Effects on the landscape as a resource in its own right.
Landscape quality (Condition)	A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
Landscape receptor	A defined aspect of the landscape resource that has the potential to be affected by a proposal.
Landscape strategy	The overall vision and objectives for what the landscape should be like in the future, and what is thought to be desirable for a particular landscape type or area as a whole, usually expressed in formally adopted plans and programmes or related documents.
Landscape value	The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons.
Magnitude (of effect)	A term that combines judgments about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration.
Parameters	A limit or boundary which defines the scope of a particular process or activity.
Perception	Combines the sensory (that we receive through our senses) with the cognitive (our knowledge and understanding gained from many sources and experiences).
Photomontage	A visualisation which superimposes an image of a proposed development upon a photograph or series of photographs.
Scoping	The process of identifying the issues to be addressed by an EIA. It is a method of ensuring that an EIA focuses on the important issues and avoids those that are considered to be less significant.
Seascape	Landscapes with views of the coast or seas, and coast and adjacent marine environments with cultural, historical, and archaeological links with each other.
Sensitivity	A term applied to specific receptors, combining judgments of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor.
Significance	A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic.
Stakeholders	The whole constituency of individuals and groups who have an interest in a subject or place.

Strategic Environmental Assessment	The process of considering the environmental effects of certain public plans, programmes, or strategies at a strategic level.
Susceptibility	The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences.
Time depth	Historical layering - the idea of landscape as a 'palimpsest', a much written over manuscript.
Townscape	The character and composition of the built environment including the buildings, the relationships between them, the different types of urban open spaces, including greenspaces, and the relationship between buildings and open spaces.
Tranquillity	A state of calm and quietude associated with peace, considered to be a significant asset of landscape.
Visual amenity	The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area.
Visual effect	Effects on specific views and on the general visual amenity experienced by people.
Visual receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
Visualisation	Computer simulation, photomontage, or other technique to illustrate the predicted appearance of a development.
Zone of Theoretical Visibility (sometimes Zone of Visual Influence)	A map, usually digitally produced, showing areas of land within which a development is theoretically visible.
* Change/s to Glossary when compared with standard GLVIA3 Glossary.	

APPENDIX 8.1.2 - VISUAL ASSESSMENT OF RESIDENTIAL PROPERTIES METHODOLOGY

- 1.1.1 Planning law contains a widely understood principle that individuals (i.e., visual receptors at a single residential property) have no 'right to a view' and that the outlook or view from a private property is a private interest and not therefore protected by the UK planning system.
- 1.1.2 However, the UK planning system also recognises situations where the effects on residential visual amenity are considered as a matter of public interest. This matter has been examined at a number of public inquiries where the key determining issue was not the identification of significant effects on views, but whether a development would have an overbearing effect and/or result in unsatisfactory living conditions, leading to a property being regarded, objectively, as an unattractive (as opposed to a less attractive) place in which to live.
- 1.1.3 As a consequence, the visual assessment methodology provides for a much more detailed assessment of the closest residential properties. This allows the assessor, and consequently the determining authority, to make a judgement as to whether the residents at these properties would be likely to sustain unsatisfactory living conditions which it would not be in the public interest to create. Reviews of decisions demonstrate that significant changes to the views available from a residential property, and its curtilage, are not the decisive consideration.
- 1.1.4 By way of further clarification, the methodology for assessing the visual effects on views from residential properties allows for four stages of assessment, which is set out within current guidance on Residential Visual Amenity Assessment¹ (RVAA) contained within the Landscape Institute Technical Guidance Note (TGN) 02/19. Steps 1-3 of RVAA guidance align with the standard LVIA based approach as defined in GLVIA3. The guidance recommends that the effects on residential amenity should be assessed as follows:
- Step 1 Definition of the Study Area and scope of the assessment
 - Step 2 – Evaluation of Baseline Visual Amenity
 - Step 3 – Assessment of likely change to visual amenity of properties
 - Step 4 – Forming the RVAA judgement

¹ The Landscape Institute, *Residential Visual Amenity Assessment (RVAA), Technical Guidance Note 02/19*, 15 March 2019

1.1.5 Step 4 of the RVAA is defined as being required as follows:

"In this final step, and only for those properties where the largest magnitude of effect has been identified, a further judgement is required."

1.1.6 This LVIA chapter and appendices have therefore been prepared to take account of steps 1-3 as part of the LVIA for the Scheme. Where, following assessment of effects upon residential properties at year 15, there remain significant effects at the highest magnitude of significance (major), then a full RVAA has been undertaken where appropriate for those properties affected.

1.1.7 The assessment process has considered the visual amenity from both the ground and first floor windows under steps 1-3 above as defined by GLVIA3. At these stages, where likely significant effects have been identified for Year 1, the level of significance at Year 15 has taken into account landscape mitigation measures (both primary and secondary) in views from both ground floor and first floor windows. In forming the judgement for an a full RVAA under step 4 above, at Year 15 only the effects from ground floor windows have been taken into consideration along with the associated landscape mitigation measures (both primary and secondary).

1.1.8 A residential property, for the purpose of environmental impact assessment, should be one that was designed and built/converted for that purpose and currently (at the time of the assessment) remains in a habitable condition, of a safe construction, wind and watertight with appropriate vehicle access, and services (drinking water, sanitation, and power supply). Related buildings such as barns/outbuildings, garage, huts and derelict properties should generally be excluded from the assessment, unless they form part of the curtilage of an existing residence.

1.1.9 The sensitivity of individual residential receptors is assessed as high in each case.

1.1.10 Whilst most of the properties can be viewed at close range from public roads and footpaths, some of these properties are accessed via private or gated roads and due to these access limitations, they have been assessed from the nearest public road or footpath which may be at greater distance from the property. The assessment, in this instance, should therefore be regarded as a 'best estimate' of the likely visual effects. In some instances, residential properties have been visited and viewed internally when this was requested by the owner.

1.1.11 The assessment has been further supported by aerial and ground level photography as well as map-based data. The assessment takes account of the likely views from the ground floors of properties and main garden areas but excludes upper floors and other land that may be connected with the property. Relevant information considered as part of the assessment for this LVIA process may include, but is not limited to, the following:

Scale of the proposed development:

- Number and height of the proposed development
- The horizontal extent or angle of view (AOV) of the visible array; and
- Separation distance (closest and furthest buildings).

Description of the property, as far as this can be ascertained:

- Orientation and size of property and whether views from the property towards the proposed development would be direct or oblique;
- Location of principle rooms and main living areas such as living/dining rooms, kitchens and conservatories, as opposed to working areas such as farm buildings and utility areas;
- Location of principle garden areas which may include patios and seating areas as opposed to less well used areas such as paddocks or garages; and
- The effects of any screening by landform, vegetation or nearby built form.

Location and Context:

- The aspect of the property in terms of the overall use and relationship to the garden areas and surrounding landscape;
- The principle direction of main views and visual amenity; and
- The context and nature of any intervening structures e.g., other existing development, farm buildings or forestry.

APPENDIX 8.1.3 – CUMULATIVE METHODOLOGY

1.1 INTRODUCTION

1.1.1 Assessment of cumulative effects is required both by the EIA¹ and the SEA² Directives and by the associated Regulations. Cumulative effects have been defined in a broad generic sense as ‘impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project’ (Hyder, 1999: 7).

1.1.2 GLVIA3 states that the key for all cumulative impact assessments is to focus on the likely significant effects and in particular those likely to influence decision making.

1.1.3 GLVIA3 defines cumulative effects and sets out that both cumulative landscape and cumulative visual effects must be considered in LVIA when it is carried out as part of EIA. In Scotland considerable effort has been devoted to addressing definitions and interpretation around cumulative effects and the resulting guidance has been used widely, not only in Scotland, and so is considered relevant for this assessment. This guidance defines cumulative effects as follows:

- **Cumulative effects** as ‘the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together’ (Scottish National Heritage (SNH), 2012, 4)
- **Cumulative landscape effects** as effects that ‘can impact on either the physical fabric or character of the landscape, or any special values attached to it’ (SNH, 2012:10)
- **Cumulative visual effects** as effects that ‘can be caused by combined visibility, which occurs where the observer is able to see two or more developments from one viewpoint and/or sequential effects which occur when the observer has to move to another viewpoint to see different developments’ (SNH 2012: 11).³

1.1.4 GLVIA3 states that:

¹ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017

² Strategic Environmental Assessment (SEA)

³ Guidelines for Landscape and Visual Impact Assessment (GLVIA) 3rd edition. The Landscape Institute and the Institute of Environmental Management and Assessment. 2013. P120.

“It is always important to remember that the emphasis in EIA is on likely significant effects rather than on comprehensive cataloguing of every conceivable effect that might occur.”⁴

And that:

*“The emphasis must always be on the main project being assessed and how or whether it adds to or combines with the others being considered to create a **significant** cumulative effect”⁵ [Author’s emphasis].*

1.1.5 In most cases the focus of the cumulative assessment will be on the additional effect of the project in conjunction with other developments of the same type. In some cases, development of another type or types may be relevant and may help to give a more complete picture of the likely significant cumulative effects.

1.1.6 GLVIA3 sets out the timescale of proposals for inclusion within cumulative assessments.

“Taking ‘the project’ to mean the main proposal that is being assessed, it is considered that existing schemes and those which are under construction should be included in the baseline for both landscape and visual effects assessments (the LVIA baseline).”

“The baseline for assessing cumulative landscape and visual effects should then include those schemes considered in the LVIA and in addition potential schemes that are not yet present in the landscape but are at various stages in the development and consenting process:

- *schemes with planning consent;*
- *schemes that are the subject of a valid planning application that has not yet been determined.*

Schemes that are at the pre-planning or scoping stage are not generally considered in the assessment of cumulative effects because firm information on which to base the assessment is not available and because of uncertainty about what will actually occur, that is, it is not ‘reasonably foreseeable’. But there may be occasions where such schemes may be included in the assessment if the competent authority or consultation bodies

⁴ Guidelines for Landscape and Visual Impact Assessment (GLVIA) 3rd edition. The Landscape Institute and the Institute of Environmental Management and Assessment. 2013. P121.

⁵ Guidelines for Landscape and Visual Impact Assessment (GLVIA) 3rd edition. The Landscape Institute and the Institute of Environmental Management and Assessment. 2013. P129.

consider this to be necessary. Such a request should only be made if absolutely necessary to make a realistic assessment of potential cumulative effects.”⁶

1.2 TYPES OF CUMULATIVE EFFECTS

Landscape

1.2.1 Cumulative landscape effects may result from adding new types of change or from increasing or extending the effects of the main project when it is considered in isolation. For example, the landscape effects of the main project may be judged of relatively low significance when taken on their own, but when taken together with the effects of other schemes, usually of the same type, the cumulative landscape effects may become more significant. The key for all cumulative impact assessments is to focus on the likely significant effects and in particular those likely to influence decision making.

1.2.2 Cumulative landscape effects are likely to include effects:

- *on the fabric of the landscape as a result of removal of or changes in individual elements or features of the landscape and/or the introduction of new elements or features;*
- *on the aesthetic aspects of the landscape – for example its scale, sense of enclosure, diversity, pattern and colour, and/or on its perceptual or experiential attributes, such as a sense of naturalness, remoteness or tranquillity;*
- *on the overall character of the landscape as a result of changes in the landscape fabric and/or in aesthetic or perceptual aspects, leading to modification of key characteristics and possible creation of new landscape character if the changes are substantial enough.⁷*

1.2.3 Cumulative landscape effects must be considered particularly in terms of consequences for the key characteristics of the landscape in question. The most significant cumulative landscape effects are likely to be those that would give rise to changes in the landscape character of the study area so as to result in significant effects on its key characteristics and even, in some cases, to transform it into a different landscape type.

⁶ Guidelines for Landscape and Visual Impact Assessment (GLVIA) 3rd edition. The Landscape Institute and the Institute of Environmental Management and Assessment. 2013. P123.

⁷ Guidelines for Landscape and Visual Impact Assessment (GLVIA) 3rd edition. The Landscape Institute and the Institute of Environmental Management and Assessment. 2013. P124.

Visual

- 1.2.4 Cumulative visual effects are the effects on views and visual amenity enjoyed by people, which may result either from adding the effects of the project being assessed to the effects of the other projects on the baseline conditions or from their combined effect. This may result from changes in the content and character of the views experienced in particular places due to introduction of new elements or removal of or damage to existing ones.
- 1.2.5 The distance between the visual receptors or viewpoints and the various projects does influence the magnitude of the cumulative visual effects and so feeds into judgements of their significance. Depending on the type of development it may be considered that more distant views are not likely to be significant.
- 1.2.6 As a number of separate developments must be considered, it is important to understand how these may be visually experienced.
- 1.2.7 At one viewpoint someone looking at the view in one direction may see all the projects at the same time, or someone turning through the whole 360 degrees may see different developments in different directions and sectors of the view in succession. This is referred to as combined visibility.
- 1.2.8 Users of linear routes, especially footpaths or other rights of way, or transport routes, may potentially see the different developments revealed in succession as a series of sequential views. This is referred to as Sequential visibility.
- 1.2.9 Both types of experience need to be considered where they are relevant.

<p>Combined Occurs when the observer is able to see two or more developments from one viewpoint.</p>	In Combination	Where two or more developments are or would be within the observers arc of vision at the same time without moving their head.
	In Succession	Where the features appear regularly and with short time lapses between instances depending on speed of travel and distance between the viewpoints.
<p>Sequential Occurs when the observer has to move to another viewpoint to see the same or different developments. Sequential effects may be assessed for travel along regularly used routes such</p>	Frequently sequential	Where the features appear regularly and with short time lapses between instances depending on speed of travel and distance between the viewpoints
	Occasionally sequential	Where longer time lapses between appearances would occur because the observer is

as major roads or popular paths.		moving very slowly and/or there are larger distances between the viewpoints.
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1.2.10 The approach to assessing the significance of cumulative visual effects has been guided by the same principles as the approach to the initial project assessment. It considered the following criteria:

- *“the susceptibility of the visual receptors that have been assessed to changes in views and visual amenity;*
- *the value attached to the views they experience;*
- *the size or scale of the cumulative visual effects identified;*
- *the geographical extent of the cumulative visual effects identified;*
- *the duration of the cumulative visual effects, including the timescales relating to both the project being assessed and the other projects being considered, and the extent to which the cumulative effects may be considered reversible.”⁸*

1.2.11 Higher levels of significance may arise from cumulative visual effects related to:

- *“developments that are in close proximity to the main project and are clearly visible together in views from the selected viewpoints;*
- *developments that are highly inter-visible, with overlapping ZTVs [Zones of Theoretical Visibility] – even though the individual developments may be at some distance from the main project and from individual viewpoints, and when viewed individually not particularly significant, the overall combined cumulative effect on a viewer at a particular viewpoint may be more significant.”⁹*

Approach to Assessment

1.2.12 As the Sites and Study Area/s for the Scheme are made up of four areas of land: Cottam 1, 2, 3a and 3b. We have exercised judgement about what is reasonable and in proportion and therefore appropriate. We have also considered the potential for cumulative effects where more than one Site can be observed from a particular

⁸ Guidelines for Landscape and Visual Impact Assessment (GLVIA) 3rd edition. The Landscape Institute and the Institute of Environmental Management and Assessment. 2013. P132.

⁹ Guidelines for Landscape and Visual Impact Assessment (GLVIA) 3rd edition. The Landscape Institute and the Institute of Environmental Management and Assessment. 2013. P132.

landscape or visual receptor, or where the Sites in proximity may have a cumulative effect on a landscape or visual receptor. We have approached the cumulative assessment as two separate divisions under the following headings.

Cumulative Sites this is based on the Cottam Site/Sites and the disassociated nature of these four areas of land, that are listed below. Professional judgment prevails that there is limited intervisibility between each area due to the distances between them. In this case, we have assessed the cumulative effects of each individual land area as a combined set of effects as '**Sites**' and reached an overall conclusion on where **likely significant** effects might occur.

- Cottam 1
- Cottam 2
- Cottam 3a
- Cottam 3b

Cumulative Developments this is based on the additional changes caused by the Scheme in combination with other similar developments, these being other solar projects taken together, that are listed below. In this case, we have assessed the cumulative effects as a combined set of effects as '**Developments**' reaching an overall conclusion on where **likely significant** effects might occur.

- Bumble Bee Farm
- Field Farm
- Gate Burton
- High Marnham
- Tillbridge
- West Burton

[Assessment of In-combination Effects](#)

- 1.2.13 The combination of effects are considered in the process of identifying cumulative visual effects as part of this LVIA cumulative assessment. For avoidance of doubt, GLVIA3 (Table 7.1) takes 'Combined' or 'In combination' effects as being:

“ Occurs where the observer is able to see two or more developments within one viewpoint. Where two or more developments are or would be within the observer’s arc of vision at the same time without moving her/his head”.

1.2.14 The combination of effects are also considered in the process of identifying In-combination effects and the interest in which they may be experienced, for example:

- The combined effects of noise, dust and visual effects on a particular receptor
- The combination of individual topics, for example, the combined effects of ecology and cultural heritage and the implications of their effects on landscape mitigation; and
- The combined effects of three generating stations.

APPENDIX 8.1.4 – ZONE OF THEORETICAL VISIBILITY METHODOLOGY

- 1.1.1 For the purpose of this LVIA process in order to assist with viewpoint selection and to appreciate the potential influence of the proposed Scheme in the wider landscape, bare earth ZTV plans were used. The bare earth ZTV plans illustrate the area from where it may be theoretically possible to view all, or part, of the proposed Scheme. The ZTV does not however take account of the screening effects of buildings, localised landform, and vegetation, unless specifically mentioned (see represented by individual figures within this LVA process). As a result, there may be roads, tracks and footpaths in the vicinity of the site and in the wider setting which, although shown as falling within the ZTV, are screened or filtered by banks, walls and vegetation which would otherwise preclude viewing opportunities.
- 1.1.2 As a result, the ZTVs provide a starting point in the assessment process and accordingly tend towards giving a ‘worst case’ or greatest calculation of the theoretical visibility.
- 1.1.3 The Environment Agency’s LiDAR Terrain dataset was used as the Digital Terrain Model (DTM) for the Bare Earth ZTV. This DTM is a 2 m by 2 m raster dataset that is representative of the landform across England
- 1.1.4 The ZTV was produced using ESRI ArcGIS Pro 3.03 software, utilising the viewshed geoprocessing tool which creates a raster image indicating visibility (or not) of the proposed Scheme.
- 1.1.5 A further augmented ZTV was also produced utilising the Environment Agency’s Digital Surface Model (DSM). Woodland from the Forestry Commissions National Forest Inventory 2020 and hedgerows provided from a topographical survey were indicatively added to the DSM to give an impression of likely screening of views. Specific viewpoints (for example, a key view from a specific visitor attraction);
- Illustrative viewpoints (chosen to demonstrate a particular effect/specific issue);
 - Any important sequential views, for example, along key transport routes; and
 - Any additional viewpoints that have been requested by consultees at Scoping.
- 1.1.6 For the purpose of this LVIA process, all of the viewpoints were taken from publicly accessible land.